Project Note

Site Name: Jard Company Inc.
CERCLIS No: VTD048141741
TDD No.: 12-10-0008

Author: Christine Scesny
Date: 13 May 2013
TASK No.: 0526

SUBJECT: Wetland Acreage Located Within 4-Radial Miles and Wetland Frontage Located Along the 15-Mile Surface Water Pathway Target Distance Limit (TDL) of Jard Company Inc. Site.

The wetland acreage and frontage were determined for the Jard Company Inc. property based on National Wetland Inventory (NWI) maps associated with the following 1:24,000 scale United States Geological Survey (USGS) topographic Quadrangles:

1) Bennington, VT

Air Pathway Wetland Summary

Radial Band	Wetland Acres
On a Source (within Site boundary)	0
Site boundary to 0.25 miles	5.12
0.25 miles to 0.5 miles	1.56
0.5 miles to 1 miles	23.32
1 to 2 miles	382.3
2 to 3 miles	420.0
3 to 4 miles	564.5

Surface Water Pathway Wetlands Within TDL

Waterbody	Wetland Frontage (miles)
Unnamed Stream	0.28
Furnace Brook	0.66
Walloomsac River	5.83

Data Sources:

The Vermont Significant Wetland Inventory maps are available on the VT DEC Watershed Management Division web page (http://www.vtwaterquality.org/wqdhome.htm). VT SWI maps are available as Geographic Information Systems (GIS) shapefiles on the USGS quadrangle level. They indicate occurrences of wetlands with quarter acre resolution and were created by F&WS personnel based upon interpretation of 1:24,000 scale black and white aerial photography. The shapefiles utilize the Universal Transverse Mercator (UTM) zone 18 or 19 North American Datum (NAD) 1983 projection with map units of meters. Unique polygons indicate occurrences of wetland ecosystems (Riverine, Lacustrine, Estuarine, and Palustrine) with individual codes that specify the wetland classification of each polygon.

Wetland Eligibility for the Hazard Ranking System (HRS):

Many of the wetlands indicated by the NWI maps do not meet the definition of a wetland as specified by 40 CFR 230.3. The following table provides a guide to wetlands that can, possibly can, and cannot be presumed to meet the 40 CFR 230.3 definition of a wetland.

Wetland Category on NWI Maps	Eligible as HRS wetland?		
	Yes[a]	Possibly[b]	Generally Not[c]
Emergent wetland	X		
Scrub-shrub wetland	X		
Forested wetland	X		
Moss-lichen wetland	X		
Streambed		X	
Rocky shore		X	
Unconsolidated shore		X	
Steambed (vegetated)		X	
Unconsolidated shore (vegetated)		X	
Unconsolidated bottom			X
Aquatic bed			X
Reef			X
Rock bottom			X

[a] Can be presumed to meet the 40 CFR 230.3 definition of a wetland.
[b] May meet the 40 CFR 230.3 determination of a wetland if emergent hydrophytes are present.
[c] Generally will not meet the 40 CFR 230.3 definition of a wetland, except for some unique types of wetlands (*e.g.*, some shoals or reefs).

Method:

START utilized the Environmental Systems Research Institute (ESRI) ArcMap GIS software version 10.0 to calculate wetland acreage and frontage. START located all USGS topographic quadrangles within 4-radial miles of the site and within the surface water pathway downstream Target Distance Limit (TDL) (usually 15-miles) from the site. START then located all NWI coverages corresponding to the USGS quadrangles and merged them together using ArcMap's Geoprocessing Wizard. START then performed a query on the merged NWI coverage to remove all non-Hazard Ranking System (HRS) eligible wetland occurrences. Non-HRS eligible wetland occurrences include those indicated in the table above as "possibly" and "generally not" meeting the 40 CFR 230.3 definition of a wetland.

Air Pathway:

In accordance with the HRS Guidance Manual and the START "Instruction Manual for Wetlands Calculation", START created shapefiles approximating radial bands extending outward from the site boundary. The radial bands (donuts) were created are as follows: within the site boundary, site boundary – 0.25 miles (mi.); 0.25 – 0.5 mi.; 0.5 - 1 mi.; 1 – 2 mi.; 2 – 3 mi.; and 3 – 4 mi. Each radial band was saved as a unique shapefile. These radial bands were used as "cookie cutters" to cut the merged and queried wetland coverage in order to identify and isolate HRS-eligible wetlands contained within each radial band. The HRS-eligible wetlands contained within each radial band were then saved as new shapefiles.

START then used the "XTOOLS[1]" ArcMap extension on each shapefile containing HRS eligible wetlands within each radial band to calculate the area, in acres, of each unique wetland occurrence. "XTOOLS" calculates the area in acres of each polygon in a shapefile by multiplying the "Area" field in the Attributes Table by a conversion factor. This conversion factor is based upon the map units of the geographic projection (meters for UTM NAD 83). After running "XTOOLS" on each shapefile containing HRS eligible wetlands within the radial bands, START exported the Attributes Table for each merged and clipped wetland shapefile to Excel.

START then summed the Acres field of the Attributes Table in Excel to determine the total wetland acreage within the radial band. The Excel spreadsheets for each radial band are included as Attachment No. 1. The total wetland acres within each radial band are summarized in the table on page 1 of this project note.

Attachment No. 2 consists of an ArcMap map showing the site boundary, the boundaries of each radial band, and all HRS eligible wetlands within 4 radial miles of the site.

Surface Water Pathway

In accordance with the HRS Guidance Manual and the START "Instruction Manual for Wetlands Calculation", START created a polyline shapefile approximating all occurrences of wetland frontage along the surface water pathway TDL from the site. This polyline shapefile typically consists of discrete polyline segments that trace wetland frontage on both sides of the waterbodies included in the TDL.

Upon completion of the polyline shapefile approximating wetland frontage, START utilized the XTOOLS ArcMap extension to determine the linear distance of each discrete polyline. XTOOLS inserts an additional column in the Attributes Table for the shapefile listing the distance of each polyline segment. START personnel then manually enter the name of the waterbody corresponding to each polyline segment in the Attributes Table before exporting it to Excel. A summary table of wetland frontage along the surface water pathway TDL from the site is included on page 1 of this project note.

Attachment No. 3 consists of an ArcMap map depicting the site boundary, the entire surface water pathway as delineated by START, and all HRS eligible wetlands located in the vicinity of the waterbodies contained in the surface water pathway TDL.

[1] DeLaune, M.G. (Oregon Dept. of Forestry). 2000. *XTools ArcView Extension* (Version 9/15/2003).

ATTACHMENT NO. 1
Excel Export Tables Containing Total Wetland Acres Within Each Radial Band (Donut) Extending Outward from the Site Boundary.

ATTACHMENT NO. 2

ArcMap GIS Map Showing Site Boundary, HRS-Eligible Wetlands Within 4-Radial Miles of Site, and Donuts Used to Approximate Radial Bands

ATTACHMENT NO. 3
ArcMap GIS Map Depicting Site Boundary; Surface Water Pathway TDL,
and HRS-Eligible Wetlands in the Vicinity of TDL

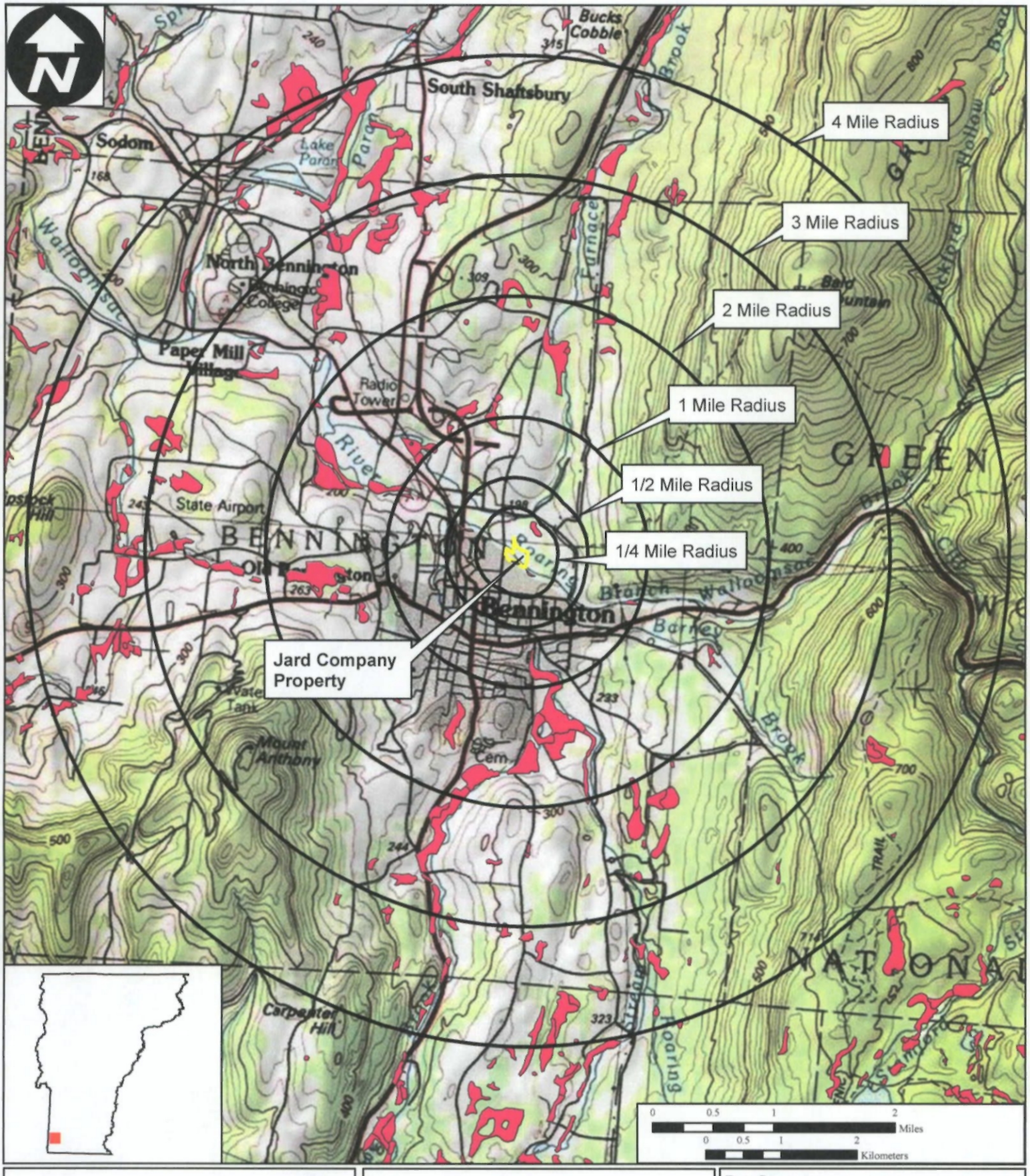

Figure 1

Wetland Map
(Air Pathway)

Jard Company Inc
Bowen Road
Bennington, VT

EPA Region I
Superfund Technical Assessment and Response Team (START) III
Contract No. EP-W-05-042

TDD Number:	12-10-0008
Created by:	Christine Scesny
Created on:	10 March 2013
Modified by:	
Modified on:	

Data Sources:

Topos: MicroPath/USGS
Quadrangle Name(s): Bennington, VT
All other data: START; US Fish and Wildlife National Wetlands Inventory

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